

REMARKS

Claims 35-43 are pending in the present application. In the Office Action dated October 29, 2003, the Examiner rejected claims 35, 38 and 39 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,727,989, to Ohno et al. ("Ohno") in view of U.S. Patent No. 5,915,860 to Laurent ("Laurent"). The Examiner further rejected claims 36 and 37 under 35 U.S.C. § 103(a) as being unpatentable over the Ohno and Laurent references and further in view of U.S. Patent No. 6,135,859, to Tietz ("Tietz"). Additionally, the Examiner rejected claims 40 and 43 under 35 U.S.C. § 103(a) as being unpatentable over the Ohno reference in view of U.S. Patent No. 5,865,545, to Kondo ("Kondo"). Finally, claims 41 and 42 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Ohno in view of Kondo and further in view of Tietz. Applicant disagrees with these grounds of rejection and wishes to clarify various distinctions of the embodiments of the applicant's disclosed invention over the cited art. Reconsideration is therefore requested in light of the present amendment and following remarks.

As a preliminary matter, applicant notes that, although the PTO-1449 submitted with the Information Disclosure Statement filed August 10, 2001, has been signed by the Examiner, the listed references are not initialed by the Examiner. Applicant respectfully requests that the Examiner review this matter, initial the PTO-1449 references in question, and return the initialed document to the undersigned.

The disclosed embodiments will now be discussed in comparison to the prior art. It is understood, however, that the following discussion of the disclosed embodiments, as well as the discussion of the differences between the disclosed embodiments and the prior art subject matter do not define the scope or interpretation of any of the claims. Instead, such discussed differences are offered merely to help the Examiner appreciate important claim distinctions as they are discussed.

The present invention generally relates to an apparatus to planarize a microelectronic substrate. As described by embodiments of the present invention, the apparatus generally includes a platen having a support surface that is oriented at a non-horizontal angle, a non-continuous polishing pad adjacent to the support surface of the platen with a planarizing surface that is also oriented at a non-horizontal angle, and a carrier located proximate to the

planarizing surface for biasing the microelectronic substrate against the polishing pad. The polishing pad can be an elongated web-format type polishing pad that extends from a supply roll to a take-up roll, or alternatively, the polishing pad can be a circular planform polishing pad that is used with a corresponding circular platen. In either case, the platen can be oriented vertically or at other non-horizontal angles to promote the flow of planarizing fluid and suspended particulate material from the polishing pad. Removal of spent planarizing fluid and suspended particulate in this manner is particularly advantageous since it minimizes the possibility of surface scratching of the semiconductor substrate.

An additional advantageous aspect of an inclined platen and polishing pad is that the apparatus can have a smaller planform outline, or "footprint", so that the apparatus occupies generally less floor space when compared to conventional planarizing machines. This aspect thus allows a greater number of machines to be positioned within a given floor area.

The Examiner has cited the Ohno reference. Ohno discloses an apparatus for forming a spherical mirror surface. Referring to Figure 6 of the Ohno reference, the apparatus includes a supply roller 11 and a spaced apart take up roller 12. The supply roller 11 and the take up roller 12 cooperatively retain an abrasive tape 2 on the apparatus. The abrasive tape 2 does not include a linear member that extends between the supply roller 11 and the take-up roller 12. Instead, Ohno discloses a generally C-shaped support member that retains the rollers 11 and 12 in a spaced-apart relationship across a stage 3 that has a concave curvature in order to form a spherical surface on a workpiece 1.

The Laurent reference has also been cited by the Examiner. Laurent discloses a roller apparatus for a printer ribbon that is wound around a pair of opposing rollers. With reference now to Figure 1 of Laurent, the roller apparatus retains the opposed tubular rollers 4 within a casing 6. The Laurent reference does not disclose or fairly suggest a linear member that extends between the rollers.

The Examiner has also cited Tietz for disclosing a fixed abrasive polishing pad that includes a suspension medium and a plurality of abrasive elements that are fixedly distributed in the suspension medium. Tietz fails to disclose or to fairly suggest the disclosure missing from the Ohno and Laurent references; namely, a linear member that extends between the rollers.

The Examiner further cites the Kondo reference. Kondo discloses an ink ribbon cartridge for a printer. With reference to Figure 3 of Kondo, a pair of opposing spools 7a and 8a are positioned within a cartridge housing 10 that may be removed from the housing 10, as shown. It is noted, however, that the Kondo reference describes the housing 10 as a shell (col. 4, lines 1-4) that couples the opposing spools 7a and 8a. Kondo does not disclose or suggest a linear member that extends between the spools.

Turning now to the claims, differences between the claim language and the applied art will be specifically pointed out. Claim 35, as amended, recites in pertinent part: "A polishing pad cartridge for installation on a planarizing machine having a supply spindle and a take-up spindle spaced apart from the supply spindle by a first distance, the cartridge comprising...*a cartridge frame comprising a linear member* having a first attachment portion and a second attachment portion spaced apart from the first attachment portion by a second distance, the second distance being approximately equal to the first distance between the supply spindle and the take-up spindle...a supply roll rotatably coupled to the frame at the first attachment portion...a take-up roll rotatably coupled to the frame at the second attachment portion...and...an elongated polishing pad having a first end attached to the supply roll and a second end attached to the take-up roll." (Emphasis added). The applied references do not disclose or suggest a linear member that couples the supply roll to the take up roll. Claim 35 is therefore allowable over the cited references. Claims depending from claim 35 are also allowable based upon the allowable form of the base claim and further in view of the additional limitations recited in the dependent claims.

Claim 40, as amended, recites in pertinent part, "A polishing pad cartridge for installation on a planarizing machine having a supply spindle and a take-up spindle spaced apart from the supply spindle by a first distance, the cartridge comprising...a supply roll having a first aperture for receiving the supply roll spindle...a take-up roll having a second aperture for receiving the take-up roll spindle...*an elongated member coupling the supply roll and the take-up roll*...and...an elongated polishing pad having a first end attached to the supply roll and a second end attached to the take-up roll, the elongated polishing pad being at least partially coiled on the supply roll, the take-up roll being movable relative to the supply roll to separate the first and second apertures by a second distance approximately equal to the first distance while the polishing pad is attached to the supply roll and the take-up roll." (Emphasis added). Again, the

applied art simply does not disclose this. Accordingly, claim 40 is in allowable form. Claims depending from claim 40 are also allowable based upon the allowability of the base claim and further in view of the additional limitations in the dependent claims.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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Fee Transmittal Sheet (+ copy)

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